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Facultative myiasis caused by larval Megaselia sp. phorid flies is reported in a human in Texas. On two occasions during 24 hours, a youth experienced a "crawling sensation" deep in his throat which caused him to cough, expelling a living larva from his throat. The site of the infestation was presumed to be the sinuses or upper respiratory tract. The symptoms resolved upon expulsion of the larvae and no additional complications were observed in the patient.

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Case Report: Facultative Myiasis by Megaselia sp.
(Diptera: Phoridae) in Texas¹

T. L. Carpenter² and D. O. Chastain³



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Abstract

Facultative myiasis caused by larval Megaselia sp. phorid flies is reported in a human in Texas. On two occasions during 24 hours, a youth experienced a "crawling sensation" deep in his throat which caused him to cough, expelling a living larva from his throat. The site of the infestation was presumed to be the sinuses or upper respiratory tract. The symptoms resolved upon expulsion of the larvae and no additional complications were observed in the patient.

Key Words: Insecta, Diptera, Phoridae, Megaselia sp., human, myiasis

Human myiasis caused by species of the dipteran family Phoridae has been reported only rarely in the United States. Biery et al. (1979) reported single cases of cutaneous and vaginal myiasis caused by phorid larvae in Texas. This report describes a recent case of myiasis caused by phorid fly larvae in Texas.

Case Report

On 7 June 1990, a 17-year-old Hispanic male reported to a United States Air Force hospital in San Antonio, Texas, after having coughed up some "worms." The day prior to presentation the patient was playing a trombone when he experienced a "crawling sensation deep in [his] throat." Upon coughing, the patient expelled a living larva. Because he was uncertain of the larva's origin, the patient cleaned his trombone but found nothing unusual. The following day, the patient again experienced a crawling sensation in his throat while playing his trombone, and subsequently expelled a second living larva. He presented both larvae to a physician upon reporting to the hospital later that day. The two small (approximately 5 mm in length), legless, whitish larvae were forwarded to the Medical Entomology Section, U. S. Air Force School of Aerospace Medicine, Brooks Air Force Base, Texas, for identification.

The patient had been treated 1 week earlier with amoxicillin (250 mg 3 times daily by mouth for 10 days) for cough,

congestion, and rhinorrhea. Those symptoms resolved in 2-3 days, prior to his coughing up the larvae. The patient had a history of asthma and allergic symptoms requiring multiple medications (Slobid^R, Seldane^R, Proventil MDI^R, Beconase AQ Nasal^R) but was noncompliant at presentation. There was no history of fever, vomiting, diarrhea, constipation, unusual skin rashes, or recent travel outside his hometown of San Antonio, Texas. Physical examination of the patient revealed no apparent abnormalities except for mild atopic dermatitis and mild forced expiratory wheezing. A chest radiograph and sinus series revealed no abnormalities. The patient was treated with an anthelmintic (Vermox^R, 100 mg twice daily by mouth for 3 days) pending identification of the organism, and was instructed to resume his prescribed medications. Stools for ova and parasites were requested but not received from the patient. At follow-up 1 week later, the patient had expelled no more larvae and was asymptomatic.

Discussion

The two larvae were alive when received at the hospital parasitology laboratory, but died before receipt at the medical entomology section. They were identified as Megaselia species, probably scalaris (Loew). Megaselia spp. have previously been documented as causing myiasis in humans. M. scalaris caused two recent cases of urogenital myiasis in India and in Malawi (Singh &

Rana 1989, Meinhardt & Disney 1989). Patton (1922) reported a case of ophthalmic myiasis caused by M. scalaris larvae infesting a diseased cornea. M. scalaris is a nearly cosmopolitan species whose larvae have been reported from a wide range of habitats. In Japan, a urogenital case was caused by Megaselia sp., probably trivialis (Brues) (Disney & Kurahashi 1978). Biery et al. (1979) reported vaginal and wound myiasis caused by Megaselia sp., probably scalaris, in Texas. A review of our reference collection revealed two Megaselia sp. larvae that were found in a nasal aspirate sample taken from a 2-month-old child in Bay County, Florida, on 26 August 1982. Myiasis caused by phorids appears to be relatively benign usually, but one pulmonary case in Japan caused by Megaselia spiraculis Schmitz resulted in severe symptoms that required extensive treatment (Komori et al. 1978).

Phorid flies are commonly known as "humpbacked" flies for their characteristic appearance. They are very small, 2-4 mm in length, and are dark brown or yellowish in color. Adult flies are often found around decaying organic material. The females are attracted to strong or foul odors, and lay their eggs in a variety of media, including fruits, stale meat, excrement, and carrion (James 1947). A larval development time of 10-14 days has been measured in wounds (Patton 1922), but development times under other conditions are unknown.

Larvae of Megaselia spp. are small (1-5 mm in length), truncately rounded posteriorly with broad processes on the terminal segment. The caudal spiracles are located dorsally, supported on contiguous individual tubercles. Small tubercles project laterally from each segment. A sclerotized internal cephalopharyngeal skeleton can be seen under low magnification, and the mouthhooks are very small. The size and condition of the larvae recovered from the patient in the present study indicated that they were mature, or close to maturity, and may have been seeking a place to pupate. Because of the tiny amount of sclerotization present in phorid larvae, they would be inapparent upon routine x-ray examination.

The inhalant steroid dispenser used by the patient was examined as a possible source of the larvae, but it was determined that there was no route of infestation from that source. Questioning of the patient revealed no definite source of infestation. Because of their larval habits, it is very unlikely that mature larvae were aspirated or ingested by the patient. The route of infestation could have been through inhalation of airborne eggs or a gravid fly, or oviposition by a fly on or in the patient's mouth or musical instrument. His history of asthma and allergies, frequently associated with "mouth breathing," may have increased the opportunity for oviposition or inhalation of eggs or a gravid fly, as would the deep aspirations associated with playing

a trombone. Because the adult flies are very small they could easily be aspirated without being noticed. Facultative myiasis of the sinuses after aspiration of insect eggs has been reported (Hurd 1954), though no phorid larvae were reported in that case, and one case of pulmonary myiasis after the presumed aspiration of a fly or eggs has been reported (Komori et al. 1978). Ingestion of eggs or larvae would most probably have resulted in intestinal myiasis and would not have presented as this case did; the patient exhibited no symptoms of an intestinal infestation. His symptoms of cough, congestion, and rhinorrhea experienced 1 week before the first instance of larval expulsion, were suggestive of an allergic reaction to a foreign substance, and could have marked the initial exposure to fly material.

The flies infesting the patient probably originated from a natural population near his home in an urban residential area. During 1990, phorids were frequently collected in large numbers in industrial areas of an Air Force base in San Antonio, Texas, and also were found infesting blood agar medium in a medical laboratory in a San Antonio hospital (unpublished data). Eliminating fly breeding sites in and around the infested site, keeping doors and windows closed, and sealing potential entry points such as holes in window screens and gaps around doors would reduce the number of phorids and the risk of myiasis from them.

Myiasis caused by phorid larvae may be relatively benign as in this case, except for the potential revulsion and anguish felt by the patient. Benign phorid myiasis may be underreported because of the small size of the larvae and the lack of serious long-term complications from infestation. Due to the evidence from one case report (Komori et al. 1978) that pulmonary myiasis by phorid larvae may have serious consequences, anyone who coughs up "worms" should consult a physician.

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Footnotes

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